

REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is respectfully requested. Claims 6 and 18 have been amended. Claim 27 has been added. No claims have been cancelled. Hence, Claims 1 - 27 are pending in the Application. Amendments made to the claims as indicated herein have been made to exclusively improve readability and clarity of the claims and not for the purpose of overcoming alleged prior art. Each issue raised in the Office Action mailed June 30, 2005 is addressed hereinafter.

SUMMARY OF REJECTIONS/OBJECTIONS

Claims 1 – 5, 10 – 17, and 22 – 24 are rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 6,035,412, hereafter Tamer, in view of U.S. Patent No. 5,890,169, hereafter Wong.

Claims 6 – 7, 18 – 19, 25 – 26 are rejected under 35 USC 103(a) as being unpatentable over Tamer, in view of Wong, in further of U.S. Patent No. 5,819, 298.

Claims 8 – 9 and 20 – 21 are rejected under 35 USC 103(a) as being unpatentable over Tamer, in view of Wong, in further view of U.S. Patent No. 6,032,158.

Claims 1 and 13

Claims 1 and 13 recite:

....

concurrently with said first database system directly storing first database records
 in first data blocks having a first data block size, said first database system
 directly accessing a copy of second data blocks in which a second
 database system directly stored second database records;
 said second data blocks having at least one data block with a second data block
 size different than said first data block size; and

wherein each block of said first data blocks and of said second data blocks is an atomic unit of storage space allocated within a file to store one or more records of a database.

Importantly, claims 1 and 13 require that the first and second data blocks be "an atomic unit of storage space allocated within a file to store one or more records of a database", and that the second data blocks have at least one data block with a second data block size different than said first data block size. These features, together with others required by claim 1, are not disclosed or suggested in any way by the cited art.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143

The Office Action bases its rejection on cited art that, alone or in combination, fails to teach or suggest all the claim limitations of claims 1 and 13. Furthermore, the cited art fails to provide a suggestion or motivation to combine.

1. The Office Action has given an unreasonably broad interpretation of the term "data block."

In correlating either a volume to a data block or a cluster to a data block, the Office Action has given the term data block, as claimed, an unreasonably broad interpretation. The MPEP states the following about claim interpretation.

"CLAIMS MUST BE GIVEN THEIR BROADEST REASONABLE INTERPRETATION

During patent examination, the pending claims must be "given *>their<broadest reasonable interpretation consistent with the specification." >>*In re Hyatt*, 211 F.3d 1367,1372,54 USPQ2d 1664,1667 (Fed.Cir.2000)" (MPEP 2111)

"The broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *In re Cortright*, 165 F.3d 1353,1359,49 USPQ2d 1464,1468 (Fed.Cir.1999)" (id.)

However, the rule of interpretation to which the PTO is subordinate is not that a claim term is to be given its broadest interpretation but is instead to be "given [the] broadest *reasonable* interpretation consistent with the specification" (emphasis added) and "consistent with the interpretation that those skilled in the art would reach.

The Office Action has given an unreasonably broad interpretation of the term "data block" in Claims 1 and 13 because the Office Action has given the term **two fundamentally different meanings**.

The Office Action has associated a "data block" with a "volume" in Tamer (Office Action, section 4, 3rd paragraph), but at the same time associates a "data block" with a "cluster" in Wong (Office Action, section 4, paragraphs 7-8).¹ However, a "volume" in Tamer and a "cluster" in Wong are described as two fundamentally different objects with completely different functions.

A "volume" in Tamer corresponds to an "individual disk" in a "disk array." (Tamer, Col. 4, line 65- Col. 5, line 5). Further, a volume "store(s) the database files" (Col. 5, line

¹ Applicant respectfully points out that Examiner's language "Wong's suggestion of creating a file allocation table [(FAT)] file system with different block sizes" (Office Action, section 4, paragraph 8) is a misquote of Wong. Specifically, Col. 7 lines 24-35 of Wong refer to the creating a FAT file system from two or more FAT file systems with different cluster sizes. Applicant thus assumes that Examiner has associated a data block with a "cluster" as in Wong.

4) Conversely, Wong describes a “cluster” as the “minimum size that may be allocated for a disk” (Wong, Col. 1, lines 56-62). Specifically, “a file system typically divides the array of bytes in a file into a set of **fixed size clusters**.” (Wong, Col. 2, lines 56-57).

Clearly, the function of “clusters” in Wong is not to “store the database files” as the volumes in Tamer do. Rather, a cluster represents the “minimum allocated space” for a file system to divide an array of bytes into, such that “if a file system’s cluster size is 8192 bytes, then the first cluster allocated to a file would contain bytes 0 to 8191, and the next cluster of the file would contain bytes 8192 to 16383, etc.” (Wong, Col. 2, lines 59-63).

Thus, under the Office Action’s logic, a data block is interpreted to be two fundamentally different objects with two fundamentally different functions. A data block cannot be both a disk volume and a “minimum size that may be allocated for a disk.” Therefore, the interpretation of “data block” is unreasonably broad.

Because of this inconsistency, Applicant respectfully traverses the rejection of Claims 1 and 13 because a “data block” in Claims 1 and 13 cannot be analogous to a “volume” as in Tamer. The Office Action rejects Claims 1 and 13, citing that the “data block” element is equivalent to the “volumes” described in Tamer (Office Action, section 4, 3rd paragraph). Again, as indicated above, the Office Action would also interpret “data block” to be consistent with a “cluster” as in Wong.

Assuming that a “data block” is a “cluster” as the Office Action contends would mean that a “data block” is the “minimum size that may be allocated for a disk” and that a data block is a “fixed size” (Wong, Col. 1, lines 56-62).

However, following this logic, a “data block” could not be a “volume” as in Tamer because it is a minimum size that may be allocated to a disk, while the “volume” in

Tamer is not an allocation to a disk but rather the actual disk which stores the database files. Thus, with respect to the disk “volume” of Tamer, one skilled in the art would not interpret a disk volume as an “atomic unit of storage space allocated within a file to store one or more records of a database.”

Further, a “data block size” as in Claims 1 and 13 cannot be equated with a “set of tracks” as described in Tamer because it would be wholly inconsistent with the teachings of Tamer. For instance, Tamer describes that “[e]ach of the volumes of the first and second sets of volumes is made up of a corresponding set of tracks,” and that each track is represented by a record in a submap. Further, “each of the submaps [corresponding to the volumes] **has a number of records that is equal to the number of tracks in the set of tracks**” (Col. 3, lines 15-17). If a volume contains 20 tracks, there will be 20 records. Thus, the 20 tracks are collectively referred to as the “set of tracks” and the number of tracks in the “set of tracks” is equivalent to the number of records in the database submaps.

However, a “data block size” is not equivalent to a number of records. Rather, the claimed “data block size” is an “**atomic unit of storage space allocated within a file** to store one or more records of a database.” Thus, as the Office Action admits, it is an allocated space like a “cluster” as in Wong. The “set of tracks” in Tamer, on the other hand, is not an allocated space. Therefore, assuming that “data block size” is equivalent to a “set of tracks” in Tamer, as the Office Action has proposed is unreasonable.

Based on this claim language, one of ordinary skill in the art could not reasonably interpret “data block size” to be equivalent with the “set of tracks” in Tamer. Therefore, Tamer does not teach all the claimed limitations of Claims 1 and 13.

2. Additional claim limitations not taught by Tamer or Wong

Further, neither Tamer nor Wong recites all the claim limitations of Claims 1 and 13 because they do not teach the following elements of Claims 1 and 13:

...

concurrently with said first database system directly storing first database records in first data blocks having a first data block size, said first database system **directly accessing a copy of second data blocks in which a second database system directly stored second database records**

(emphasis added)

Importantly, Claims 1 and 13 require that the first database system directly access a copy of the second data blocks concurrently with storing the first database records in the first data blocks. However, neither Tamer nor Wong teaches this limitation.

In Tamer, “a host processor [...] writes its data to the first set of devices and the data storage system generates a **mirror copy of that data** in the second set of volumes which are paired with the first set of volumes” (Tamer, Col. 5, lines 34-38)(Emphasis added). Thus, Tamer does not directly access a copy of second data blocks **in which a second database system stored second database records**.

Instead, the processor in Tamer causes an “automatic write of the **same data** to the second set of devices.” (emphasis added)(Col. 5, line 40). Claims 1 and 13, however, require the first database system to directly access a copy of second data created by a second database system. Clearly, no second data exists in Tamer because there is no second database system, and the system in Tamer is merely “mirroring” the same data. This illustrates a fundamental difference between Tamer and the limitations of

Claims 1 and 13. Therefore, Tamer does not teach the claimed limitations of Claims 1 and 13.

Further, Wong does not teach these claim limitations, nor does the Office Action suggest the same. Therefore, Applicant respectfully traverses the rejection of Claims 1 and 13 and allowance of the claims is respectfully requested.

3. The Office Action Fails to Fully Address Applicant's Previous Reply

The Office Action at page 8 summarizes Applicant's previous arguments as follows: "Applicant argues that: (a) Neither Tamer or Wong tech of suggest in any way that data blocks are an 'atomic unit of storage space allocated within a file to store one or more records of a database' (b) Tamer may not be combined with Wong." Applicant respectfully believes that the Office Action has failed to completely address Applicant's second argument. Specifically, although the Office Action suggests that "applicant seems to be suggesting that there is no suggestion to combine the references" that is not the full scope of Applicant's argument. Applicant has argued, and further argues (*infra*) that even combined, the teachings of the references are inadequate to support a *prima facie* obviousness rejection because **combining the references would violate a principle of operation central to one of the references**. See MPEP § 2143.01. Applicant has thus not made a "piecemeal analysis of references" as alleged by the Office Action, but has respectfully pointed out that combining the two references would violate a principal clearly articulated in the MPEP. Thus, Applicant respectfully points out that the Office Action has failed to set forth any reasons why the combination of the references does not violate this principle. For the sake of advancing prosecution, Applicant has respectfully expanded on the same argument below.

4. Combining Wong with Tamer violates a principle of operation central to Tamer. Therefore, there is no motivation or suggestion to combine Tamer with Wong and Tamer may not be used to establish obviousness.

Combining Wong with Tamer does not anticipate claims 1 or 13 because each reference on its own or when combined does not teach all the claimed elements of claims 1 or 13. Based on a reasonable interpretation of a data block, as claimed, neither Tamer nor Wong teach or suggest anything about the claimed data blocks. Therefore, Tamer or Wong could not possibly teach or suggest in any way data blocks with different sizes in the way claimed.

The MPEP states, “[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. MPEP §2143.01 citing *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

The Office Action associates a “data block” in Claims 1 and 13 to a “cluster” in Wong. Wong describes a “cluster” as the “minimum size that may be allocated for a disk,” and that the size of each cluster is the “cluster size.” Hence, following the logic of the Office Action, we must assume that “data block size” of the claims is analogous to the “cluster size” of Wong. Although Wong may teach the existence of different cluster sizes for different file systems, the Applicant respectfully points out that combining the different cluster sizes of Wong with Tamer would violate Tamer’s principle of operation and also render Tamer unfit for its intended purposes.

Specifically, Tamer would not be able to complete a backup or “mirror” restore of its data onto a second volume if the cluster size of the first and second volumes were different. In fact, it would be impossible for the cluster size to change as in Wong because in Tamer, the target volume is a “mirror” of the source volume. If the target volume is a mirror of the source volume, the cluster size of the target volume must inherently be the same as the cluster size for the source volume. Otherwise, the target volume would not be a “mirror” of the source volume and the system taught by Tamer would become inoperable.

Thus, Tamer teaches a system of synchronization that requires volumes that mirror each other i.e. they must have the same tracks. Because the modification proposed by the Office Action violates this principle of operation, there is no motivation or suggestion to combine the teachings of Tamer and Wong - Tamer may not be combined with Wong. Therefore, the Office Action has failed to establish *prima facie* obviousness and the rejection is respectfully traversed and allowance of the claims is respectfully requested.

5. Dependant Claims

CLAIMS 6 and 18

The Office Action rejected dependent Claims 6 and 18 under 35 U.S.C. 103(a) as being unpatentable over Tamer, in view of Wong ('169) and further in view of Wong et al. U.S. Pat. No. 5,819, 298.

The Office Action recognizes that neither Tamer nor Wong ('169) teach the step of generating metadata that specifies a plurality of block sizes for data blocks directly accessible to said first database system. Instead, the Office Action claims Wong ('298)

teaches this metadata at Col. 14, lines 48-65. Claims 6 and 18 have now been amended to read:

“ ... the step of the first database system generating metadata that specifies a plurality of block sizes for data blocks directly accessible to said first database system.

Applicant submits that neither Tamer, Wong ('169) nor Wong et al ('298) teach the features of Claims 6 and 18 as amended. Wong et al ('298) does not teach the feature of a first database system generating metadata that specifies a plurality of block sizes for data blocks directly accessible to said first database system. Specifically, Wong et al ('298) describes a file system of a computer system, wherein the file system updates metadata corresponding to a particular file. However, Claims 6 and 18 features a first database system generating metadata for plurality of block sizes for data blocks. Because Wong ('298) does not teach a database system, it cannot possibly teach a first database system generating metadata that specifies a plurality of block sizes for data blocks directly accessible to the database system. Therefore, neither Tamer, Wong ('169) nor Wong et al ('298), alone or in combination, teach all the features of Claims 6 and 18 and the rejection is traversed. Allowance of the claims is respectfully requested.

6. Additional Claims

CLAIM 27

Claim 27 reads:

The method of Claim 12,

wherein said buffer cache comprises first buffers for storing buffers of said first data block size and second buffers for storing buffers of said second data block size; and wherein said first buffers are of a different size than said second buffers.

None of the cited references teach or suggest the claimed features of Claim 27. Specifically, the cited references do not teach or suggest a first buffer for storing buffers of a first data block size and a second buffers for storing buffers of a second data block size, wherein the first buffers are of a different size than the second buffers. Therefore, Applicant submits that Claim 27 is patentable over the art of record, including the art cited but not applied.

MISCELLANEOUS

The pending claims not discussed so far are dependant claims that depend on an independent claim that is discussed above. Because each of the dependant claims include the limitations of claims upon which they depend, the dependant claims are patentable for at least those reasons the claims upon which the dependant claims depend are patentable. Removal of the rejections with respect to the dependant claims and allowance of the dependant claims is respectfully requested. In addition, the dependent claims introduce additional limitations that independently render them patentable. Due to the fundamental difference already identified, a separate discussion of those limitations is not included at this time.

For the reasons set forth above, Applicant respectfully submits that all pending claims are patentable over the art of record, including the art cited but not applied. Accordingly, allowance of all claims is hereby respectfully solicited.

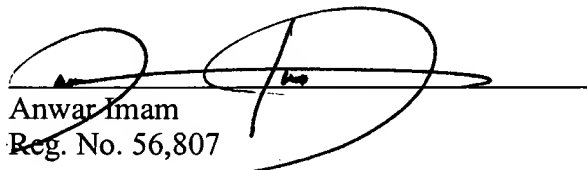
The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

A Petition for Extension of Time under 37 CFR 1.136 is hereby made to the extent necessary for this reply to be timely filed. A law firm check is attached for all fees that may apply to this reply. If the check is missing or insufficient, the Commissioner is hereby authorized to charge any applicable fee to our Deposit Account No. 50-1302.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

on October 12, 2005

by Trudy Bagdon
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